

REMARKS/ARGUMENTS

Reconsideration of this application in light of the above amendments and following comments is courteously solicited.

The examiner in the office action dated July 26, 2006 rejected all of the previously submitted claims under 35 U.S.C. 102 (a) as being anticipated by U.S. Patent 6,682,821 to Fukudome et al. As to how this rejection applies to the claims as amended herein, it is respectfully traversed.

The '821 document discloses a ceramic substrate having a surface protection layer on the surface of the substrate comprising zirconia stabilized with an element of the Group IIIa of the Periodic Table. It is critical in the '821 patent to use zirconia stabilized with an element of the Group IIIa of the Periodic Table in order to prevent the formation of cracks in the surface protection. In this regard the examiner's attention is drawn to column 4 lines 26-34 of the '821 document. The '821 document further goes on to say that it is critical that the total amount of Al and Si contained in the surface protection layer be suppressed so as to be not greater than 1% by mass and ideally not larger than 0.01% by mass. See column 4 lines 53-57. The '821 document goes on to state in the paragraph bridging columns 4 and 5 of same that the layer of stabilized zirconia offers corrosion protection when compared to, for example, mullite. On column 7 lines 38-44, the '821 patent goes on to talk about the "densely" formed surface protection layer. The '821 patent goes on to describe that the surface protection layer has a porosity of from 1 to 30%. See column 5 lines 13-19. It is stated that this porosity effectively suppresses cracks. It is clear from the discussion of the surface protection layer starting on column 4, line 26 through column 5 line 27 that the purpose of the stabilized zirconia protection layer is to prohibit the substrate from being contacted with the

aqueous high temperature environment. Thus, while there is disclosed in the '821 patent a "porosity" the porosity is clearly a "closed" porosity which is meant to prohibit contact of the high temperature aqueous environment with the ceramic substrate. This will be pointed out below, the '821 patent does not teach, disclose, suggest or render obvious the invention as now claimed in independent claim 19 and the claims which depend therefrom.

The examiner's attention is drawn to paragraph [0010] of the instant application. As can clearly be seen from this portion of the instant specification and elsewhere, contrary to the teachings of the '821 document, cracks are actually introduced in the velocity barrier layer of the present invention. The porosity which is introduced into the velocity barrier layer of the present invention is a "open" porosity which does allow the substrate to be contacted by the aqueous high temperature environment. However, as is clearly disclosed in the instant application, the amount of open porosity is controlled so as to obtain two beneficial results, namely, to reduce stresses to eliminate spalling and to provide protection from recession in an aqueous high temperature environment. This goal is obtained in accordance with the present invention by providing "open" porosity which reduces velocity of any impinging gas stream to a level sufficient for the barrier layer to exhibit erosion resistance to the air stream so as to meet minimum life requirements.

The '821 document does not teach provision of a velocity barrier layer as disclosed in the instant application and as specifically discussed in paragraphs [0007] and [0010]. Claim 19 has been amended so as to eliminate from the Markush group yttria stabilized zirconia. The claimed velocity barrier layer, as claimed in the Markush group, can consist of mullite,

alumina, and contain Al and Si in amounts which far exceed the limitations of the teachings of the '821 document. Accordingly, it is submitted that the '821 document cannot be said to teach or render obvious the velocity barrier layer as now claimed in independent claim 19. Accordingly, it is respectfully submitted that independent claim 19 and the claims which depend therefrom patentably define over the art of record and an early indication of same is respectfully requested.

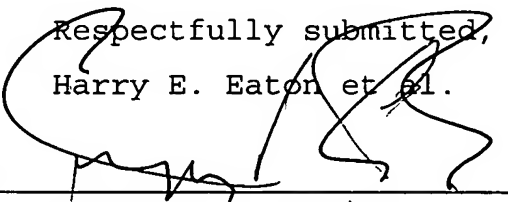
An earnest and thorough attempt has been made by the undersigned to resolve the outstanding issues in this case and place same in condition for allowance. If the Examiner has any questions or feels that a telephone or personal interview would be helpful in resolving any outstanding issues which remain in this application after consideration of this amendment, the Examiner is courteously invited to telephone the undersigned and the same would be gratefully appreciated.

It is submitted that the claims as amended herein patentably define over the art relied on by the Examiner and early allowance of same is courteously solicited.

If any fees are required in connection with this case, it is respectfully requested that they be charged to Deposit Account No. 21-0279.

Respectfully submitted,
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I, Rachel Piscitelli, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on October 19, 2006.

